Rhodamine appended tripodal receptor as a ratiometric probe for Hg$^{2+}$ ions

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1. Change in absorbance of receptor 1 with various metal ions in MeCN/water (4/1,v/v; 10 μM tris HCl buffer; pH = 7.0)
**Figure 1S.** Absorption titration spectra for 1 (c = 4.41 x 10^{-5} M) with (a) Co^{2+}, (b) Zn^{2+}, (c) Cu^{2+}, (d) Mg^{2+}, (e) Ni^{2+}, (f) Cd^{2+}, (g) Pb^{2+}, (h) Fe^{2+}, (i) Mn^{2+} and (j) Ag^{+} in MeCN/water (4/1,v/v; 10 μM tris HCl buffer; pH = 7.0 ) (in all cases [cation] = 8.82 x 10^{-4} M).

2. Change in emission of receptor 1 with Zn^{2+}, Cu^{2+}, Fe^{2+}, Cd^{2+}, Co^{2+}, Pb^{2+}, Mn^{2+}, Mg^{2+}, Ni^{2+}, Ag^{+} in MeCN/Water (4/1,v/v; 10 μM tris HCl buffer; pH 7.0).
Figure 2S. Change in emission of receptor 1 (c = 4.41 x 10⁻⁵ M) upon addition of (a) Zn²⁺, (b) Cu²⁺, (c) Fe²⁺, (d) Cd²⁺, (e) Co²⁺, (f) Pb²⁺, (g) Mg²⁺, (h) Mn²⁺, (i) Ni²⁺, (j) Ag⁺ in MeCN/Water (4/1,v/v; 10 μM tris HCl buffer; pH = 7.0) (in all cases [cation] = 8.82 x 10⁻⁴ M) [λₜₐₓ = 510 nm].

3. Change in fluorescence ratio at 536 nm.

Figure 3S. Change in fluorescence ratio of 1 (c = 4.41 x 10⁻⁵ M) at 536 nm upon addition of 18 equiv. amounts of cations.

4. UV Job plot for 1 with Hg²⁺ measured at 556 nm.

Figure 4S. UV Job plot for 1 with Hg²⁺ in MeCN/Water (4/1,v/v; 10 μM tris HCl buffer; pH = 7.0) ([H] = [G] = 4.41 x 10⁻⁵ M).
5. Emission titration spectra of 1 with Hg$^{2+}$ in MeCN/Water (4/1,v/v; 35 μM tris HCl buffer, pH 7.0)

![Emission titration spectra of 1 with Hg$^{2+}$ in MeCN/Water](image)

**Figure 5S.** Change in fluorescence spectra of 1 ($c = 4.35 \times 10^{-5}$ M) in MeCN/Water (4/1,v/v; 35 μM tris HCl buffer, pH 7.0) upon addition of Hg$^{2+}$.

6. Emission titration spectra of 1 with different concentrations of Hg$^{2+}$ ions

![Emission titration spectra of 1 with different concentrations of Hg$^{2+}$ ions](image)

**Figure 6S.** Change in fluorescence spectra of 1 ($c = 4.35 \times 10^{-5}$ M) in MeCN/Water (4/1,v/v; 10 μM tris HCl buffer, pH 7.0) upon addition of (a) Hg$^{2+}$ ($c = 8.7 \times 10^{-4}$ M); (b) Hg$^{2+}$ ($c = 8.7 \times 10^{-5}$ M); (c) Hg$^{2+}$ ($c = 8.7 \times 10^{-6}$ M).
7. Test of reversibility in the binding process

Figure 7S. Change in fluorescence spectra of 1-Hg$^{2+}$ complex ($c = 6.5 \times 10^{-5}$ M) in MeCN/Water (4/1, v/v; 10 μM tris HCl buffer, pH 7.0) upon addition of (a) Na$_2$EDTA ($c = 4.5 \times 10^{-3}$ M); (b) Cysteine ($c = 4.5 \times 10^{-3}$ M). Change in absorbance of 1-Hg$^{2+}$ complex in CH$_3$CN/H$_2$O (4/1, v/v; 10 μM tris HCl buffer; pH 7.0) upon addition of (c) Na$_2$EDTA ($c = 4.5 \times 10^{-3}$ M); (d) Cysteine ($c = 4.5 \times 10^{-3}$ M) and associated colour changes.
8. $^1$H NMR of 1 (CDCl$_3$, 400 MHz):

![Figure 8S. $^1$H NMR spectrum of receptor 1.](image)
9. $^{13}$C NMR of 1 (CDCl$_3$, 100 MHz):

![13C NMR spectrum of receptor 1](image)

**Figure 9S.** $^{13}$C NMR spectrum of receptor 1.
10. Mass of 1

Figure 10. LCMS spectrum of receptor 1.
11. $^{13}$C NMR of 1 and 1 with 1.2 equiv. amounts of Hg(ClO$_4$)$_2$ (CDCl$_3$, 100 MHz):

Figure 11S. $^{13}$C NMR spectrum of (a) receptor 1 and (b) 1 with 1.2 equiv. amount of Hg(ClO$_4$)$_2$.